

WHAT IS CLAIMED IS:

1. A cartridge-handling apparatus for a media storage system, comprising:

5 a lift assembly having at least one guide track aligned along a first displacement path in the media storage system;

10 a carriage having a transfer shaft aligned along a second displacement path in the media storage system, said transfer shaft operatively associated with said at least one guide track of said lift assembly for moving said carriage along said at least one guide track through said first displacement path; and

15 a picker slidably mounted on said carriage to said transfer shaft, said picker moving with said carriage through said first displacement path, said picker moving on said transfer shaft through said second displacement path.

2. The cartridge-handling apparatus of claim 1, wherein said transfer shaft extends between two guide tracks, each end of said transfer shaft engaging one of said two guide tracks.

3. The cartridge-handling apparatus of claim 1, wherein said lift assembly has at least one elongate bearing race extending substantially the length of said at least one guide track, said transfer shaft slidably mounted in said bearing race.

4. The cartridge-handling apparatus of claim 1, further comprising a drive motor mounted to said carriage, said drive motor operatively associated with said at least one guide track for moving said picker through said first 5 displacement path.

5. The cartridge-handling apparatus of claim 1, further comprising a drive motor mounted to said picker, said drive motor operatively associated with said carriage for moving said picker through said second displacement path.

6. The cartridge-handling apparatus of claim 1, further comprising a drive motor mounted to said picker, said drive motor operatively associated with said transfer shaft on said carriage for moving said picker through 5 said second displacement path.

7. The cartridge-handling apparatus of claim 6, wherein said transfer shaft has a plurality of zero-pitch rings formed about the circumference thereof, and said drive motor operates at least one drive pinion, said at least one drive pinion engaging said plurality of zero-pitch 5 rings on said transfer shaft.

8. The cartridge-handling apparatus of claim 1, wherein said carriage has a transfer platform mounted in spaced-apart relation to said transfer shaft, said transfer platform supporting said picker on said carriage.

9. The cartridge-handling apparatus of claim 1, further comprising a guide wheel mounted to said carriage, said guide wheel engaging said at least one guide track.

10. The cartridge-handling apparatus of claim 1, further comprising a guide bearing pivotally mounted to said picker, said guide bearing engaging said carriage.

11. The cartridge-handling apparatus of claim 1, wherein said first displacement path is substantially orthogonal to said second displacement path.

12. A cartridge-handling apparatus for a media storage system, comprising:

a lift assembly having at least one guide track aligned along a first displacement path in the media storage system;

a carriage having a transfer shaft aligned along a second displacement path in the media storage system, said transfer shaft rotatably engaging said at least one guide track;

10 a picker mounted to said carriage on said transfer shaft;

a first drive motor mounted to said carriage, said first drive motor operatively associated with said transfer shaft for moving said picker along said at least one guide track through said first displacement path; and

15 a second drive motor mounted to said picker, said second drive motor operatively associated with said carriage for moving said picker along said transfer shaft through said second displacement path.

13. The cartridge-handling apparatus of claim 12, wherein said lift assembly has at least one gear rack operatively associated with said first drive motor.

14. The cartridge-handling apparatus of claim 13, wherein said first drive motor operates at least one drive pinion, said at least one drive pinion engaging said at least one gear rack on said lift assembly.

15. The cartridge-handling apparatus of claim 12, further comprising a plurality of zero-pitch rings formed on said transfer shaft.

16. The cartridge-handling apparatus of claim 15, wherein said second drive motor operates at least one drive pinion, said at least one drive pinion engaging said plurality of zero-pitch rings formed on said transfer shaft.

17. The cartridge-handling apparatus of claim 12, wherein said carriage has a gear rack operatively associated with said second drive motor.

18. The cartridge-handling apparatus of claim 15, wherein said second drive motor operates at least one drive pinion, said at least one drive pinion engaging said gear rack on said carriage.

19. The cartridge-handling apparatus of claim 12, wherein said lift assembly has at least one elongate bearing race aligned along the first displacement path, and wherein said carriage has at least one bearing member, said at least one bearing member on said carriage slidably engaging said at least one elongate bearing race on said lift assembly.

20. The cartridge-handling apparatus of claim 12, further comprising at least one guide wheel mounted to said carriage, said at least one guide wheel engaging said at least one guide track.

21. The cartridge-handling apparatus of claim 12, further comprising an umbilical cable flexibly connected to said picker.

22. The cartridge-handling apparatus of claim 21, wherein said carriage has an umbilical tray, said umbilical tray collecting said umbilical cable.

23. The cartridge-handling apparatus of claim 12, wherein said carriage comprises a transfer platform mounted in spaced-apart relation to said transfer shaft.

24. The cartridge-handling apparatus of claim 23, further comprising a guide bearing mounted to said picker, said guide bearing engaging said transfer platform.

25. A cartridge-handling apparatus for a media storage system, comprising:

first guide means for defining a first displacement path in the media storage system;

5 second guide means for defining a second displacement path in the media storage system, said second guide means rotatably engaging said first guide means for moving said second guide means along said first guide means through the first displacement path; and

10 cartridge-engaging means for transporting a data cartridge through the first and second displacement paths, said cartridge-engaging means moving with said second guide means through the first displacement path, said cartridge-engaging means moving on said second guide means through the second displacement path.

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26. The cartridge-handling apparatus of claim 25, further comprising drive means for moving said second guide means through the first displacement path.

27. The cartridge-handling apparatus of claim 25, further comprising drive means for moving said cartridge-engaging means through the second displacement path.